Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
2000 Biennial Regulatory Review --	)	
Streamlining and Other Revisions of	)	
Part 25 of the Commission's Rules	)	
Governing the Licensing of, and	)	IB Docket No. 00-248
Spectrum Usage by, Satellite Network	)	
Earth Stations and Space Stations	)	
	)	

COMMENTS OF
THE SATELLITE INDUSTRY ASSOCIATION

September 6, 2005

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COMMENTS OF
THE SATELLITE INDUSTRY ASSOCIATION

The Satellite Industry Association ("SIA") hereby submits its comments on the Third Further Notice of Proposed Rulemaking ("3rd FNPRM") in the above-captioned proceeding.[1]

SIA is a U.S.-based trade association providing worldwide representation of the leading satellite operators, service providers, manufacturers, launch services providers, remote sensing operators, and ground equipment suppliers. SIA is the unified voice of the satellite industry on policy, regulatory, and legislative issues affecting the satellite business in the United States.[2]

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[1] Sixth Report and Order and Third Further Notice of Proposed Rulemaking, IB Docket No. 00-248, FCC 05-62 (March 15, 2005). These comments have been developed with respect to earth stations operating at fixed locations. The issues would need further consideration before being applied to other types of earth stations.

[2] SIA includes Executive Members: The Boeing Company; Globalstar LLC; Hughes Network Systems LLC; ICO Global Communications; Intelsat; Iridium Satellite LLC; Lockheed Martin Corp.; Loral Space & Communications Ltd.; Mobile Satellite Ventures; Northrop Grumman Corporation; PanAmSat Corporation and SES Americom, Inc. and Associate Members: Eutelsat Inc., Inmarsat Ltd., New Skies Satellites Inc., Stratos Global Corporation, and The DirecTV Group.

I. Introduction and Summary

In these comments, SIA addresses the following four aspects of the 3rd FNPRM: (1) EIRP density masks; (2) analog video; (3) contention protocols; and (4) protection of the NRAO radio quiet zone.

EIRP density masks. SIA supports the Commission's proposal for an EIRP density mask. Because the effects of pointing error are generally more pronounced in smaller antennas than they are in larger antennas, SIA proposes that the Commission adopt separate off-axis EIRP masks for larger antennas and smaller antennas. Under SIA's proposal, any size antenna would be eligible for routine licensing if it satisfied the applicable mask, but the specific set of off-axis EIRP envelopes to be used would vary with the size of the antenna.

As for other elements of the Commission's EIRP density mask proposal:

- The minimum angle of elevation for elliptical C-band earth station antennas should not be increased above 5° because elevation angles are low in many northern communities that rely on C-band satellite links.
- The level of protection granted to a receive antenna under §25.209(c) should continue to be based on the extent to which interference would be expected to be caused to antennas that satisfy the requirements of §25.209(a) and/or §25.209(b).
- The current procedures for resolution of complaints of harmful interference remain adequate, and there is no need for introducing additional procedures.
- In cases in which the adjacent satellite and the target satellite both are U.S.-licensed, the Commission should require that certifications under § 25.220(e)(1)(ii), to the effect that operation at higher-power has been coordinated, be signed by both the target satellite operator and the adjacent satellite operator.
- The Commission need not adopt punitive measures in order to encourage good-faith coordination.

- Requiring applicants to submit a table showing EIRP at various off-axis angles would not permit an adequate evaluation of the effects of variables such as the satellite station keeping box, earth station pointing error and variations in topocentric angles for different geographic locations. Instead, the Commission should either require a graph or mandate a format for digital submission of antenna patterns.
- SIA supports use of the proposed $10\log_{10}(N)$ approach for CDMA transmissions, but notes that in other contexts (*e.g.*, AMSS systems) in which CDMA systems assign capacity on demand and have the capability of controlling the aggregate off-axis EIRP density, limiting the off-axis EIRP density per earth station may not be appropriate.

Analog video.

SIA opposes the Commission's proposal to prohibit analog video signals. If adopted, this proposal would cost satellite customers hundreds of millions of dollars to replace equipment that would be rendered obsolete. There is no technical justification for saddling customers with expenses of this magnitude. The reception of analog video signals imposes no greater constraints on adjacent satellite operations than the reception of digital video signals, because analog signals are entitled to no more interference protection than digital signals. Nor does the transmission of analog video signals present any interference concerns because a successful system already is in place which applies total power and minimum antenna size requirements for routine licensing and adjacent satellite operators coordinate their use of analog video services. Furthermore, spectral efficiency is a non-issue. Any spectral efficiency associated with digital transmissions will be realized no matter what the Commission does in this proceeding, because it is inevitable that analog video services will be converted to digital services over time.

G. Off-Axis EIRP Envelope per Earth Station Versus Aggregate Off-Axis EIRP Envelope

SIA supports the off-axis EIRP envelope per earth station approach proposed by the Commission and reflected in the tables in Sections II and IV of Appendix C by the introduction of the term $10\log_{10}(N)$, where for CDMA transmissions "N is the maximum number of co-frequency simultaneously transmitting earth stations in the same satellite receiving beam."[13] SIA notes, however, that in other contexts (*e.g.*, AMSS systems), in which CDMA systems assign capacity on demand and have the capability of controlling the aggregate off-axis EIRP density, limiting the off-axis EIRP density per earth station may not be appropriate.

H. Proposed Minor Corrections to Appendix C

Throughout Appendix C, the phrase "no individual sidelobe exceeds the envelope given above by more than 3 dBW/4 kHz[14] should read "no individual sidelobe exceeds the envelope given above by more than 3 dB." Similarly, the phrase "shall not exceed the envelope by more than 6 dBW/4 kHz"[15] should read "shall not exceed the envelope by more than 6 dB." Moreover, the first entry (first row, first column) of the first table in Section II of Appendix C that currently reads "$27.3 - 10\log_{10}(N) - 25\log_{10}\theta$" should read "$26.3 - 10\log_{10}(N) - 25\log_{10}\theta$."

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13 See text below the first table in Sections II and IV of Appendix C to the 3rd FNPRM.
14 See text below the first table in Sections I, II, II and IV of Appendix C to the 3rd FNPRM.
15 See text below the second table in Sections I, II, II and IV of Appendix C to the 3rd FNPRM.

SIA's Proposed Approach

SIA suggests that two different sets of off-axis EIRP density limits be used. The first set of limits would be that proposed in Appendix C of the 3rd FNPRM and would be applicable to larger antennas for which pointing errors are not significant. The second set of limits would be applicable to smaller antennas for which greater pointing errors may occur.

The boundary between the classes of antennas that should comply with the first set of limits and the classes of antennas that should comply with the second set of limits is necessarily arbitrary, because there is no absolute point of demarcation between the two. Based on antenna sizes that are more likely to be subject to pointing errors as large as 0.5°, SIA proposes that the boundaries for C-band and Ku-band antennas be set to an effective diameter of 2.4 m and 0.70 m, respectively, so that antennas with equivalent diameters equal to or smaller than these sizes would be subject to tighter EIRP density limits.[24] For example, for C-band antennas with equivalent diameters greater than 2.4m, digital emissions in the plane of the geostationary orbit would be subject to the limits in Table 1, as proposed in Appendix C, Section II(1), of the 3rd FNPRM, i.e.[25]

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[24] Given that ESV antennas have a tighter pointing accuracy requirement, and that there are AMSS systems authorized to operate using active control of pointing and aggregate emissions levels, SIA recognizes that the Commission may subject ESV and AMSS antennas to different uplink off-axis E.I.R.P. masks. This is corroborated by the fact that the present FNPRM does not address ESV or AES terminals, which are dealt with under separate proceedings.

[25] In the 3rd FNPRM, the entry in the first row and first column appears as $27.3 - 25\log_{10}\theta$ instead of $26.3 - 25\log_{10}\theta$ as it should be (see Section 1.8 above). Additionally, the entry in the second row appears as 5.3 instead of 5.2 as it should be.

Table 1

$26.3 - 25\log_{10}\theta$	dBW/4 kHz	For	$1.5° \le \theta \le 7°$
5.2	dBW/4 kHz	For	$7° < \theta \le 9.2°$
$29.3 - 25\log_{10}\theta$	dBW/4 kHz	For	$9.2° < \theta \le 48°$
- 12.7	dBW/4 kHz	For	$48° < \theta \le 180°$

where it has been assumed that N=1. For CDMA transmissions the $10\log_{10}(N)$ term would be included in the formulas in Table 1.

For C-band antennas with equivalent diameter of 2.4 m or less, digital emissions in the plane of the geostationary orbit would be subject to the limits in Table 2 below.

Table 2

$26.3 - 25\log_{10}(\theta + 0.5)$	dBW/4 kHz	For	$1.5° \le \theta \le 6.5°$
5.2	dBW/4 kHz	For	$6.5° < \theta \le 8.7°$
$29.3 - 25\log_{10}(\theta + 0.5)$	dBW/4 kHz	For	$8.7° < \theta \le 47.5°$
- 12.7	dBW/4 kHz	For	$47.5° < \theta \le 180°$

The envelopes in Table 2 are derived by shifting the envelopes in Table 1 to the left by 0.5°. In this way, the envelope at 1.5° becomes 3.1 dB more stringent and takes care of the deficit of 3.1 dB discussed above.

Similarly, for Ku-band antennas with equivalent diameter greater than 0.70 m, digital emissions in the plane of the geostationary orbit would be subject to the limits in Table 3, as proposed in Appendix C, Section IV(1), of the 3rd FNPRM, i.e.

Table 3

$15 - 25\log_{10}\theta$	dBW/4 kHz	For	$1.5° \le \theta \le 7°$
-6.1	dBW/4 kHz	For	$7° < \theta \le 9.2°$
$18 - 25\log_{10}\theta$	dBW/4 kHz	For	$9.2° < \theta \le 48°$
- 24	dBW/4 kHz	For	$48° < \theta \le 85°$
- 14	dBW/4 kHz	For	$85° < \theta \le 180°$

where it has been assumed that N=1. For CDMA transmissions the $10\log_{10}(N)$ term would be included in the formulas in Table 3.

For Ku-band antennas with equivalent diameter equal to or less than 0.70 m digital emissions in the plane of the geostationary orbit would be subject to the limits shown in Table 4 below.

Table 4

$15 - 25\log_{10}(\theta + 0.5)$	dBW/4 kHz	For	$1.5° \le \theta \le 6.5°$
-6.1	dBW/4 kHz	For	$6.5° < \theta \le 8.7°$
$18 - 25\log_{10}(\theta + 0.5)$	dBW/4 kHz	For	$8.7° < \theta \le 47.5°$
- 24	dBW/4 kHz	For	$47.5° < \theta \le 84.5°$
- 14	dBW/4 kHz	For	$84.5° < \theta \le 180°$

Off-axis EIRP limits in all other directions, *i.e.*, outside the plane of the geostationary orbit, would be those proposed in Appendix C of the 3rd FNPRM, irrespective of the size of the antenna.

The same approach would apply to antennas used for transmission of analog signals that are subject to uplink off-axis E.I.R.P. density limits.

The vagueness of NRAO's Proposal extends to the scope of its application to different satellite systems. Although both the 5th R&O and the 3rd FNPRM suggest that the NRAO Proposal is limited to VSAT systems, the regulatory language that NRAO has proposed is general and would appear on its face to apply to other FSS services and even MSS services. If that was NRAO's intent, then the NRAO Proposal is beyond the scope of this proceeding, because the NRAO Proposal was offered in response to a Commission proposal concerning VSAT systems alone. In any case, NRAO has offered no justification for requiring non-VSAT systems to coordinate with it.

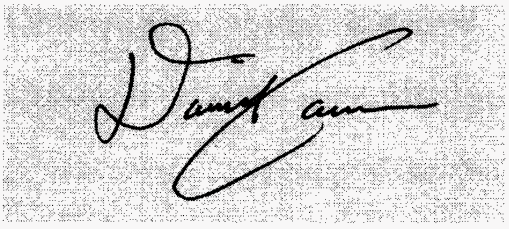
Given all these deficiencies, the Commission should reject the NRAO Proposal.

CONCLUSION

For the reasons stated herein, the Commission should modify in the manner suggested in these comments its proposals for EIRP density masks, analog video, contention protocols, and protection of the NRAO radio quiet zone.

Respectfully submitted,

SATELLITE INDUSTRY ASSOCIATION



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